



US005792573A

United States Patent [19]

Pitzen et al.

[11] Patent Number: **5,792,573**[45] Date of Patent: **Aug. 11, 1998****[54] RECHARGEABLE BATTERY ADAPTED TO BE ATTACHED TO ORTHOPEDIC DEVICE**

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[21] Appl. No.: **692,886**[22] Filed: **Jul. 24, 1996****Related U.S. Application Data**

[62] Division of Ser. No. 258,338, Jun. 10, 1994, Pat. No. 5,553,675.

[51] Int. Cl.⁶ **H01M 2/10**[52] U.S. Cl. **429/97; 429/98; 429/99**[58] Field of Search **429/96-100; 30/500. 30/DIG. 1; 206/703, 705; 310/50; 318/139****[56] References Cited****U.S. PATENT DOCUMENTS**

D. 364,463 11/1995 Pitzen et al. D24/146
2,261,230 11/1941 Cox et al. .
2,460,149 1/1949 Schoensiegel .
3,120,845 2/1964 Horner .
3,494,799 2/1970 Pedone, Jr. .
3,734,207 5/1973 Fishbein .
3,943,934 3/1976 Bent .
3,999,110 12/1976 Ramstrom et al. .
4,050,528 9/1977 Foltz et al. .
4,091,880 5/1978 Troutner et al. .
4,386,609 6/1983 Mongeon .
4,441,563 4/1984 Walton, III .
4,447,749 5/1984 Reeb, Jr. et al. .
4,728,876 3/1988 Mongeon et al. .
4,736,742 4/1988 Alexson et al. .
4,751,452 6/1988 Kilmer et al. .
4,834,092 5/1989 Alexson et al. .
4,835,410 5/1989 Bhagwat et al. .
4,871,629 10/1989 Bunyea 429/97
4,873,461 10/1989 Brennan et al. .
5,026,384 6/1991 Farr et al. .
5,089,738 2/1992 Bergqvist et al. .
5,122,427 6/1992 Flowers et al. 429/97
5,136,469 8/1992 Carusillo et al. .

5,207,697 5/1993 Carusillo et al. 606/167
5,213,913 5/1993 Anthony, III 429/97
5,235,261 8/1993 Philipp 318/504
5,244,755 9/1993 Benoist et al. 429/97
5,263,972 11/1993 Evans et al. 606/176
5,265,343 11/1993 Pascal off 30/339
5,306,285 4/1994 Miller et al. 606/177
5,360,073 11/1994 Akazawa 173/15
5,388,749 2/1995 Davignon et al. 227/67

FOREIGN PATENT DOCUMENTS

0 272 434 6/1988 European Pat. Off. .
3 317 398 10/1985 Germany .

OTHER PUBLICATIONS

Japanese Abstract, 1484694, Portable Drills, Aug. 27, 1974 (1 page).

Product brochure entitled: "Maxion™ Cordless Powered Instrument System", by 3M HealthCare. (31 pages). (No Date).

Product brochure entitled: "The K-100 Mini-Driver System. Cleaning and Lubrication", by 3M Surgical Products Division (5 pages). (No Date).

Product brochure entitled: "Cordless 800 Wire Driver", by Dyonics, 1984, (2 pages). (No Month).

Product brochure entitled: "Cordless 200 Reamer", by Dyonics, 1984, (2 pages). (No Month).

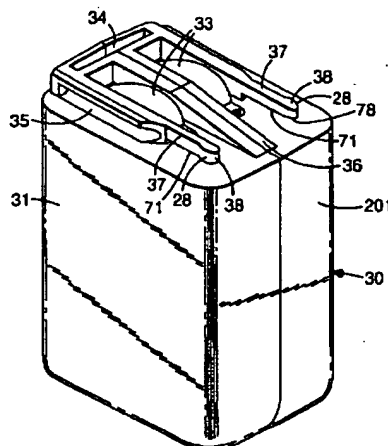
Product brochure entitled: "Cordless 450 Orthopaedic Drill", by Dyonics, 1984, (2 pages). (No Month).

Product brochure entitled: "Mini-Driver™ Air Instrument System", by 3M, 1975, (4 pages). (No Month).

(List continued on next page.)

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A cordless drive assembly for driving various orthopedic surgical instruments is described. The drive assembly is battery powered and includes tracks in the handle portion of its housing for receiving the battery. A latch locks the battery to the housing.

12 Claims, 9 Drawing Sheets**BEST AVAILABLE COPY**